

**R E M A R K S**

**Request for Form PTO-892**

USP 5,753,328 to Miyazawa et al. was cited in a prior art rejection in Item No. 59 on page 13 of the previous Office Action of April 4, 2004. However, Miyazawa et al. was not cited on the Form PTO-892 which was attached to the April 4, 2004 Office Action. The Examiner is therefore respectfully requested to provide a further Form PTO-892 which lists Miyazawa et al.

**Claim Amendments**

The amendments to claims 1 and 2 are supported by the paragraph bridging pages 25 and 26 of the specification.

Claim 4 was amended into independent form to include the features of claim 1.

Claim 30 was amended to respond to the 35 USC 112 second paragraph rejection.

Objections to Specification and Rejection  
of Claims under 35 USC 112, First Paragraph

The specification was objected to under 35 USC 132 for the reasons set forth in Item No. 3 on page 2 of the Office Action which stated that the amendment to the specification of "1:2 complex chromate" to --1:2 chromium complex-- in the AMENDMENT UNDER 37 CFR 1.111 filed September 28, 2004 introduced "new matter."

The paragraph bridging pages 9 and 10 and page 32 of the specification were amended hereinabove to revert back to the originally recited terminology of "complex chromate."

Withdrawal of the objection to the specification is therefore respectfully requested.

Claims 28 and 29 were rejected under 35 USC 112, first paragraph, for the reasons set forth in Item No. 5 on page 3 of the Office Action.

Claims 28 and 29 were canceled hereinabove.

Withdrawal of the 35 USC 112, first paragraph rejection is therefore respectfully requested.

Rejection under 35 USC 112, Second Paragraph

Claim 30 was rejected under 35 USC 112, second paragraph for the reasons set forth in Item No. 7 at the bottom of page 3 of the Office Action.

As discussed hereinabove, claim 30 was amended to avoid the 35 USC 112, second paragraph rejection.

It is respectfully submitted that all the present claims comply with all the requirements of 35 USC 112.

37 CFR 1.116

With respect of Rule 116, entry of the above amendments is respectfully requested, since the specification amendments are responsive to an objection to the specification and the amendment to claim 30 is in reply to a rejection under 35 USC 112, which were set forth in the Final Rejection. Such amendments are not considered to raise any new issues.

Presently Claimed Invention

The presently claimed invention concerns a film-laminated metal sheet for a container comprising resin films, the resin

films each containing a polyester as a main component, on both surfaces of a metal sheet, wherein

a polarity force component  $\gamma s^h$  of a surface-free energy of a surface of the resin film positioned on an inner surface side of the container after formation of the container and that is to be in contact with a content of the container is  $4 \times 10^{-3}$  N/m or less,

a region, where a birefringence of the resin film positioned on the inner surface side of the container after formation of the container is 0.02 or less, is less than 5  $\mu\text{m}$  from a contact interface with the metal sheet in the thickness direction, said birefringence is determined by measuring retardation in a cross-sectional direction of the film after removal of the metal sheet from the film-laminated metal sheet.

The presently claimed invention is also directed to a film-laminated metal sheet for a container comprising resin films, the resin films each containing a polyester as a main component on both surfaces of a metal sheet, wherein

a resin film positioned on an inner surface side of the container after formation of the container comprises at least two

layers, a resin film positioned on an outer surface side of the container after formation of the container comprises at least one layer; and a polarity force component  $\gamma_{s^h}$  of a surface-free energy of a surface where an uppermost-layer resin film, which is one of the at least two resin layers and which is positioned on the outer surface side of the container, is to be in contact with a content of the container is  $4 \times 10^{-3}$  N/m or less,

a region, where a birefringence of the resin film positioned on the inner surface side of the container after formation of the container is 0.02 or less, is less than 5  $\mu\text{m}$  from a contact interface and the metal sheet in the thickness direction.

Prior Art Rejections

Claims 1, 2, 4, 6 to 7, 9, 11, 15, 16, 18, 20 to 25 and 30 were rejected under 35 USC 102 as being anticipated by Takahashi et al. (EP 1174457) for the reasons stated in Item Nos. 10 to 12 on pages 4 to 5 of the December 15, 2004 Office Action.

Regarding the polarity force component  $\gamma_{s^h}$ , Takahashi et al. EP 1174457 disclose a surface free energy of 20 to 40  $\text{mN}/\text{m}$ . The surface free energy of 20 to 40  $\text{mN}/\text{m}$  is equivalent to

20 x 10<sup>-3</sup> to 40 x 10<sup>-3</sup> Nm. Therefore, Takahashi et al. do not disclose or suggest a surface free energy of 2 x 10<sup>-3</sup> N/m.

Accordingly, it is respectfully submitted that a polarity force component  $\gamma_s^h$  of 4 x 10<sup>-3</sup> N/m or less as recited in applicants' claims cannot be derived from the disclosure of Takahashi et al.

Regarding birefringence, Takahashi et al. EP 1 174 457 disclose the following in paragraph [0020] on page 4:

"From the point of view of the lamination and fabrication properties, the difference between the film lengthwise direction refractive index ( $n_x$ ) and the widthwise direction refractive index ( $n_y$ ) of the biaxially-oriented polyester film for fabrication of the present invention (the birefringence:  $\Delta n = n_x - n_y$ ) preferably lies in the range -0.001 to -0.050, preferably  $\Delta n$  lies in the range -0.005 to -0.02." [emphasis provided]

In contrast to Takahashi et al, the birefringence of the presently claimed invention is determined by measuring a retardation in the cross-sectional direction of the film after removal of the metal sheet from the laminate metal sheet, as described in the specification on page 25, line 21 to page 26,

line 13. Thereby, a birefringence in the cross-sectional direction of the resin film is obtained in the present invention. The birefringence  $\Delta n$  is defined by the following expression:  
 $\Delta n = R/d$ , wherein "R" is the phase difference referred to as retardation, and "d" is the film-layer thickness.

In summary, with respect to birefringence, the following should be considered:

(1) The definition of birefringence of the present invention is quite different from that of Takahashi et al.

(2) In the present invention, the film after laminating is measured to determine the birefringence. In Takahashi et al. EP 1174457, the film before laminating is measured to determine the birefringence. The present invention is therefore different from Takahashi et al. regarding the film to be measured.

Claims 1 to 7 and 15 to 25 were rejected under 35 USC 103 as being unpatentable (obvious) over Kuze et al. (JP 7-109363) in view of Markfort et al. (USP 5,451,304) (see Item Nos. 14 and 15 on page 5 of the December 15, 2004 Office Action).

It was admitted in Item No. 18 on page 6 of the previous Office Action of April 13, 2004 that the above combination of

references does not explicitly teach the requirement in claim 1 that the polarity force component  $\gamma_s^h$  be  $4 \times 10^{-3}$  N/m or less.

It was also admitted in Item No. 21 on page 7 of the previous Office Action of April 13, 2004 that with respect to applicants' claim 6, Kuze et al. as modified by Markfort et al. do not explicitly teach the amount of wax in the polyester resin film on the inner surface of the container is 0.8 to 2 mass %.

In Item no. 32 on page 7 of the December 15, 2004 Office Action, it was stated that the Examiner agreed with applicants' arguments against the references other than Takahashi et al. that such references do not teach the claimed value or claimed property of  $\gamma_s^h$ .

Claims 8 and 11 were rejected under 35 USC 103 as being unpatentable over Kuze et al. as modified by Markfort et al. and further in view of Iwasa et al. (JP 2000-158585) (see Item Nos. 16 and 17 on page 5 of the December 15, 2004 Office Action).

It was admitted in Item No. 27 on page 8 of the previous Office Action of April 13, 2004 that Kuze et al., as modified by Markfort et al., do not teach the features of claim 8, i.e., the

polyester film having a benzene carbon relaxation time of 150 msec or longer.

It was also admitted in the previous Office Action of April 13, 2004 that Kuze et al., as modified by Markfort et al., do not teach the features of applicants' claim 11 to comprise 95 mol% or more of ethylene terephthalate units.

Claims 9, 10, 12 and 13 were rejected under 35 USC 103 as being unpatentable over Kuze et al. as modified by Markfort et al. and further in view of Iwasa et al. (see Item Nos. 18 to 25 in the December 15, 2004 Office Action).

It was admitted in Item No. 36 at the top of page 10 of the previous Office Action of April 13, 2004 that Kuze et al., as modified by Markfort et al., do not teach the features of applicants' claim 9, which recites that the resin film is a biaxially oriented polyester film having a melting point of 240°C to 300°C, wherein the content of a terminal carboxyl group is 10 to 50 equivalent/ton, and an isophthalic acid component is not substantially contained as an acid component.

It was admitted in Item No. 42 at the top of page 11 of the previous Office Action of April 13, 2004 that Kuze et al., as

modified by Markfort et al., do not teach the features of applicants' claim 10, namely that the resin film is a biaxially oriented polyester film having an amorphous Young's modular of 120 to 220 kg/m<sup>2</sup>.

It was admitted in Item No. 48 bridging pages 11 and 12 of the previous Office Action of April 13, 2004 that Kuze et al., as modified by Markfort et al., do not teach the features of applicants' claim 12, namely wherein the resin film is a biaxially oriented film having 93 mol% or more ethylene terephthalate units and having a crystal size x in a (100) plane obtained through an X-ray diffraction measurement of 0.6 nm or smaller.

It was admitted in Item No. 54 bridging pages 12 and 13 of the previous Office Action of April 13, 2004 that Kuze et al. as modified by Markfort et al. do not teach the features of applicants' claim 13, namely a resin film which is a biaxially oriented film having 93 mol% or more ethylene terephthalate units and having a crystal orientation parameter R obtained through an X-ray diffraction measurement of 20 x 10<sup>-2</sup> or more.

Claims 26 and 27 were rejected under 35 USC 103 as being unpatentable over Kuze et al. as modified by Markfort et al. and further in view of Tanaka (USP 6,217,994) for the reasons set forth in Item Nos. 26 and 27 at the middle of page 6 of the December 15, 2004 Office Action.

It was admitted in Item No. 66 at the top of page 15 of the previous Office Action of April 13, 2004 that Kuze et al. as modified by Markfort et al. do not teach the features of applicants' claims 26 and 27, wherein the resin film on the inner surface of the container contains an aromatic diamine base organic pigment (claim 26) or a benzimidazolone pigment (claim 27).

Kuze et al., do not disclose a wax component (see applicants' claims 4, 6, 7, 18, 20 and 21).

In the present invention, as described in the specification on page 22, line 6 to page 23, line 2, a polarity force component  $\gamma s^h$  is reduced into  $4 \times 10^{-3}$  N/m or less by adding 0.10 to 2.0% in

a ratio by mass of a wax component with respect to the resin film.

Markfort et al. relate to a process for electrophoretic coating. The process uses an aqueous electrophoretic coating composition including a polyester resin and a wax. The aqueous electrophoretic coating composition includes 20 to 80 wt.% of an epoxide resin and 1 to 60 wt.% of a polyester resin. Accordingly, the polyester resin in Markfort et al. is not necessarily a main component. In contrast to Markfort et al., the resin film of the present invention contains a polyester as a main component.

Kuze et al. relate to a polyester film laminated metal sheet. The lamination film of Kuze et al. is substantially different from the electrophoretic coating of Markfort et al. Therefore, it is respectfully submitted that one of ordinary skill in the art would not consider to combine Kuze et al. and Markfort et al.

It is therefore respectfully submitted that applicants' claimed invention is not anticipated and is not rendered obvious over the references, either singly or combined in the manner

relied upon in the Office Action in view of the many distinctions discussed hereinabove. It is furthermore submitted that there are no teachings in the references to combine them in the manner relied upon in the Office Action.

Reconsideration is requested. Allowance is solicited.

Enclosed is a check for \$200 in payment of an additional independent claim.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

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Respectfully submitted,



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Encs.: (1) PETITION FOR EXTENSION OF TIME  
(2) Check for \$200